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seem very favorable for a larger local flora and for several beach-plants found elsewhere only along the sea-coast and the great lakes.

COLUMBIA UNIVERSITY,
September 15, 1903.

A KEY TO THE NORTH AMERICAN SPECIES OF INOCYBE—I

BY F. S. EARLE

The genus *Inocybe* contains a large number of species and these are usually quite well marked. It is a rather well-defined natural group but at times some of the species have been confused with *Hebeloma* and others with *Naucoria*. The plants are mostly small and are inconspicuously colored. They usually occur on the ground in the woods but some are found in pastures or other open places and in cultivated fields. A few grow on rotten wood. For the most part the species are rather local and it is evident that their number will be largely increased when the North American fungus flora comes to be better known. In the material collected within a radius of one hundred miles from New York City during the past two years fifteen or twenty forms occur that cannot be referred to any of the following species. It is probable that many of these are undescribed but publication of them is withheld for the present.

KEY TO THE SECTIONS.

- | | |
|---|------------|
| 1. Pileus viscid when young or moist. | VISCIDAE |
| Pileus dry from the first. | 2. |
| 2. Pileus glabrous or fibrillose from the remains of the veil, not rimose nor lacerate-squamose; stipe usually glabrous with the apex pruinose. | VELUTINAE |
| Pileus rimose, lacerate-squamose or squarrose. | 3. |
| 3. Pileus glabrous or nearly so, conspicuously radiately rimose; stipe usually pale and fibrillose. | RIMOSAE |
| Pileus not conspicuously rimose, but lacerate-scaly or squarrose. | 4. |
| 4. Pileus with appressed lacerate scales, or fibrillose-floccose; stipe appressed-fibrillose, subconcolorous. | LACERAE |
| Pileus squarrose with erect or spreading scales; stipe concolorous, squarrose-squamulose. | SQUARROSAE |

KEY TO THE SPECIES

Section SQUARROSAE *

- | | |
|---|--------------------------------------|
| 1. Spores smooth. | 2. |
| Spores rough. | 5. |
| 2. Pileus umbonate, olivaceous-brown. | <i>I. dulcamara</i> (A. & S.) Gillet |
| Pileus obtuse. | 3. |
| 3. Stipe with the base bluish, reddish within. | <i>I. calamistrata</i> (Fr.) Gillet |
| Stipe not as above. | 4. |
| 4. Pileus uniformly pale ochraceous; stipe concolorous. | <i>I. unicolor</i> Peck |
| Pileus fuscous, the disk darker; stipe pallid. | <i>I. fibrillosa</i> Peck |
| 5. Stipe short, 2.5 cm. \times 2 mm. | <i>I. nodulospora</i> Peck |
| Stipe longer, 5-6 cm. | <i>I. stellatospora</i> Peck |

Section LACERAE

- | | |
|--|--|
| 1. Spores smooth. | 2. |
| Spores rough, angular, tuberculate or echinulate. | 13. |
| 2. Flesh of stipe and pileus reddish. | 3. |
| Flesh not reddish. | 4. |
| 3. Odor strong and persistent, sweet and pleasant, like pears. | |
| | <i>I. pyriodora</i> (Pers.) Gillet |
| Odor not noticeable. | <i>I. lacera</i> (Fr.) Gillet |
| 4. Small, pileus less than 2.5 cm. | 5. |
| Larger, pileus 2.5 cm. or more. | 8. |
| 5. Pileus white or grayish. | 6. |
| Pileus darker, some shade of brown. | 7. |
| 6. Stipe 1-2.5 cm. \times 1 mm.; pileus 4-8 mm. | <i>I. comatella</i> (Peck) Sacc. |
| Stipe 4-5 cm. \times 2-3 mm.; pileus 1-2 cm. | I. griseo-scabrosa (Peck) Earle† |
| 7.‡ Pileus obtuse; stipe 2-3 cm. \times 2 mm.; odor none. | <i>I. subtomentosa</i> Peck |
| Pileus umbonate; stipe 4 cm. \times 4 mm.; odor farinaceous, nauseous. | <i>I. flocculosa</i> (Berk.) Sacc. |
| 8. Stipe conspicuously bulbous. | 9. |
| Stipe equal or subequal. | 10. |
| 9. Pileus dark brown; lamellae distant; spores $6 \times 4 \mu$. | <i>I. tuberosa</i> Clements |
| Pileus yellowish-brown; lamellae subcrowded; spores $10 \times 6 \mu$. | |
| | I. Coloradoensis (Tracy & Earle) Earle‡ |
| 10. Lamellae adnate with a decurrent tooth. | <i>I. subdecurrentis</i> Ell. & Ev. |
| Lamellae sinuate or adnexed. | 11. |
| 11. Stipe short, 2-3 cm., less than the diameter of the pileus. | <i>I. tomentosa</i> Ell. & Ev. |
| Stipe longer than the diameter of pileus, reaching 5 cm. or more. | 12. |

* Some of the species included here do not fully conform to the characters of the section and should perhaps be removed to LACERAE.

† *Agaricus* (*Hebeloma*) *griseo-scabrosus* Peck, Reg. Rept. 26 : 57. 1874. *Hebeloma griseo-scabrosus* Sacc. Syll. 5: 796. 1887.

‡ Numerous forms occur that do not agree with either of these species.

§ *Naucoria Coloradoensis* Tracy & Earle. Plant. Bak. 1 : 25. 1901.

12. Veil not conspicuous, soon evanescent. **I. subochracea** (Peck) Earle*
 Veil conspicuous, webby-fibrillose; stipe longer and more fibrillose.
I. subochracea Burtii Peck
13. Spores spiny, echinate, aculeate or stellate. 14.
 Spores angular or tuberculate, not spiny. 17.
14. Stipe fibrillose, short, 2.5 cm. 15.
 Stipe subpruinose, longer, reaching 5 cm. or more. 16.
15. Pileus hygrophanous, dark brown when moist, canescent when dry.
I. maritima (Fr.) Sacc.
 Pileus dry, yellowish-brown. *I. echinocarpa* Ell. & Ev.
16. Lamellae crowded, rounded behind; spores $10-12 \mu \times 7-9 \mu$.
I. subfulva Peck
 Lamellae subdistant, narrowed behind; spores globose, 12μ . *I. rigidipes* Peck
17. Stipe more than 3 cm., ferruginous, apex white-pulverulent. 18.
 Stipe less than 3 cm., pale brown, apex not white-pulverulent.
I. maritimoides (Peck) Sacc.
18. Pileus and stipe white; spores globose, nodulose-roughened.
I. infida (Peck) Earle†
 Pileus umbrinous; stipe ferruginous; spores elliptic, angular.
I. lanuginosa (Bull.) Gillet
- NEW YORK BOTANICAL GARDEN.

SHORTER NOTES

A QUESTION FOR MORPHOLOGISTS. — Recently ‡ the theory has been advanced that the cotyledons of angiosperms are phylogenetically related to the so-called "foot" of bryophytes and pteridophytes and bear no morphological relation to foliage leaves. That the cotyledons which are primarily suctorial organs, should, under unusual conditions, enlarge, elongate their petioles, and develop much chlorophyll is perhaps no indication that they are modified foliar appendages, for the hypocotyl under like conditions also enlarges and becomes capable of photosynthesis as shown by Halsted.§ What bearing, if any, on this point, has the fact that branches may be induced to grow in the axils of the cotyledons by snipping off the plumule of the seedling? The accidental finding of

* *Agaricus* (*Hebeloma*) *subochraceus* Peck, Reg. Rept. 23: 95. 1873. *Hebeloma subochraceum* Sacc. Syll. 5: 796. 1887.

† *Agaricus* (*Hebeloma*) *infidus* Peck, Reg. Rep. 27: 95. 1877. *Hebeloma infidum* Sacc. Syll. 5: 796. 1887.

‡ H. L. Lyon. The Phylogeny of the Cotyledon. Postelsia, 1901: 55-86. 1902.

§ B. D. Halsted. On the Behavior of Mutilated Seedlings. Torreyia, 2: 17. 1902.